

**What is claimed is:**

1. A method for accessing an Information Management System (IMS) database, the method comprising:
  - 5 reading blocks of the IMS database sequentially, block by block,  
wherein each of the blocks comprises zero or more segments;  
de-blocking segments in said blocks in response to said reading;  
storing each segment in a segment array in response to said de-blocking,  
wherein said segments in the segment array are directly accessible;  
10 wherein the segment array is usable to unload the segments.
2. The method of claim 1, wherein said storing comprises storing the segments in the segment array in an indexed order;  
wherein the method further comprises creating a lookup table;  
15 wherein said lookup table is useable to access the segments in the segment array.
3. The method of claim 2, wherein said segments in the segment array are directly accessible by first accessing a root segment and then accessing child segments of the root segment using the lookup table.  
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4. The method of claim 2, wherein said storing comprises storing the segments in the segment array according to rules in the IMS database.
- 25 5. The method of claim 2,  
wherein said lookup table comprises a plurality of pairs, each of said pairs comprising a key value and a segment array location;  
wherein said key value is used to index into the lookup table to obtain a corresponding segment array location.  
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6. The method of claim 5, wherein said storing comprises storing the segments in the segment array according to a collating sequence of the key values in the lookup table.

5 7. The method of claim 6, wherein said key value comprises a segment type identification number, a partition identification number, a data set group identification number, and a relative byte address.

10 8. The method of claim 7, wherein said segment type identification number within said key value causes the root segments to be stored in the segment array before the child segments.

15 9. The method of claim 2, further comprising accessing segments from the segment array, wherein said accessing comprises:

- 20 (a) examining a root segment in the segment array;
- (b) generating a key for a first child segment of the root segment using information in the root segment;
- (c) obtaining a segment memory location of the first child segment from the lookup table using the key for the first child segment;
- 25 (d) examining the first child segment using the segment memory location of the first child segment;
- (e) generating a key for a subsequent child segment of the root segment using information in the previous child segment;
- (f) obtaining a segment memory location of the subsequent child segment from the lookup table using the key for the subsequent child segment;
- 30 (g) examining the subsequent child segment using the segment memory location of the subsequent child segment;
- repeating (e), (f), and (g) for zero or more subsequent child segments.

10. The method of claim 2, further comprising accessing segments from the segment array, wherein said accessing comprises:

examining a root segment in the segment array;

processing information from the root segment and subsequent child segments to access each root segment and its zero or more child segments according to their hierarchical relationship.

11. The method of claim 10, wherein said processing uses the lookup table.

12. The method of claim 1, wherein said storing comprises storing the child segments in the segment array in a relative byte address (RBA) order;

wherein the method further comprises creating a first segment array for root segments and a second segment array for child segments.

13. The method of claim 12, wherein said segments in the segment arrays are directly accessible by first accessing a root segment from the first segment array and then accessing child segments of the root segment from the second segment array.

14. The method of claim 12, further comprising accessing segments from the segment arrays, wherein said accessing comprises:

(a) examining a root segment in the first segment array;

(b) determining an RBA of a first child segment of the root segment using information in the root segment;

(c) examining the first child segment in the second segment array using the RBA of the first child segment;

(d) determining an RBA of a subsequent child segment of the root segment using information in the previous child segment;

(e) examining the subsequent child segment in the second segment array

using the RBA of the subsequent child segment;  
repeating (d) and (e) for zero or more subsequent child segments.

15. The method of claim 12, further comprising accessing segments from the  
segment array, wherein said accessing comprises:

examining a root segment in the segment array;  
processing information from the root segment and subsequent child  
segments to access each root segment and its zero or more child  
segments according to their hierarchical relationship.

16. The method of claim 15, wherein said processing uses the first segment  
array and the second segment array.

17. The method of claim 1, wherein de-blocking segments in said blocks in  
response to said reading further comprises:

extracting the individual IMS segments that are physically contained  
within the physical block.

18. A system comprising:

a network;  
a CPU coupled to the network;  
a memory coupled to the CPU which stores an IMS database;  
a system memory coupled to the CPU, wherein the system memory  
stores one or more computer programs executable by the CPU;  
wherein the computer programs are executable to:  
read blocks of the IMS database sequentially, block by block,  
wherein each of the blocks comprises zero or more segments;  
de-block segments in said blocks in response to said reading;  
store each segment in a segment array in response to said de-blocking,  
wherein said segments in the segment array are directly accessible;  
wherein the segment array is usable to unload the segments.

19. The system of claim 18, wherein said storing comprises storing the segments in the segment array in an indexed order;

5            wherein the computer programs are further executable to create a lookup table;

          wherein said lookup table is useable to access the segments in the segment array.

10        20. The system of claim 19, wherein said segments in the segment array are directly accessible by first accessing a root segment and then accessing child segments of the root segment using the lookup table.

15        21. The system of claim 19, wherein said storing comprises storing the segments in the segment array according to rules in the IMS database.

22. The system of claim 19,  
          wherein said lookup table comprises a plurality of pairs, each of said pairs comprising a key value and a segment array location;  
20        wherein said key value is used to index into the lookup table to obtain a corresponding segment array location.

23. The system of claim 22, wherein said storing comprises storing the segments in the segment array according to a collating sequence of the key values  
25        in the lookup table.

24. The system of claim 23, wherein said key value comprises a segment type identification number, a partition identification number, a data set group identification number, and a relative byte address.  
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25. The system of claim 24, wherein said segment type identification number within said key value causes the root segments to be stored in the segment array before the child segments.

5 26. The system of claim 19, wherein the computer programs are further executable to access segments from the segment array, wherein said accessing comprises:

- (a) examining a root segment in the segment array;
  - (b) generating a key for a first child segment of the root segment using  
10 information in the root segment;
  - (c) obtaining a segment memory location of the first child segment from the lookup table using the key for the first child segment;
  - (d) examining the first child segment using the segment memory location of the first child segment;
  - (e) generating a key for a subsequent child segment of the root segment  
15 using information in the previous child segment;
  - (f) obtaining a segment memory location of the subsequent child segment from the lookup table using the key for the subsequent child segment;
  - (g) examining the subsequent child segment using the segment memory  
20 location of the subsequent child segment;
- repeating (e), (f), and (g) for zero or more subsequent child segments.

27. The system of claim 19, wherein the computer programs are further  
25 executable to access segments from the segment array, wherein said accessing comprises:

- examining a root segment in the segment array;
- processing information from the root segment and subsequent child  
segments to access each root segment and its zero or more child  
30 segments according to their hierarchical relationship.

28. The system of claim 27, wherein said processing uses the lookup table.

29. The system of claim 18, wherein said storing comprises storing the child  
5 segments in the segment array in a relative byte address (RBA) order;

wherein the computer programs are further executable to create a first  
segment array for root segments and a second segment array for  
child segments.

10 30. The system of claim 29, wherein said segments in the segment arrays are  
directly accessible by first accessing a root segment from the first segment array  
and then accessing child segments of the root segment from the second segment array.

31. The system of claim 29, wherein the computer programs are further  
15 executable to access segments from the segment arrays, wherein said accessing  
comprises:

- 20 (a) examining a root segment in the first segment array;  
(b) determining an RBA of a first child segment of the root segment  
using information in the root segment;  
(c) examining the first child segment in the second segment array  
using the RBA of the first child segment;  
(d) determining an RBA of a subsequent child segment of the root  
segment using information in the previous child segment;  
(e) examining the subsequent child segment in the second segment array  
25 using the RBA of the subsequent child segment;  
repeating (d) and (e) for zero or more subsequent child segments.

32. The system of claim 29, wherein the computer programs are further  
executable to access segments from the segment array, wherein said accessing  
30 comprises:

examining a root segment in the segment array;  
processing information from the root segment and subsequent child  
segments to access each root segment and its zero or more child  
segments according to their hierarchical relationship.

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33. The system of claim 32, wherein said processing uses the first segment  
array and the second segment array.

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34. The system of claim 18, wherein the computer programs are further  
executable to de-block segments in said blocks in response to said reading by  
extracting the individual IMS segments that are physically contained within the  
physical block.

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35. A carrier medium which stores program instructions, wherein the  
program instructions are executable to implement:

reading blocks of the IMS database sequentially, block by block,  
wherein each of the blocks comprises zero or more segments;  
de-blocking segments in said blocks in response to said reading;  
storing each segment in a segment array in response to said de-blocking,  
wherein said segments in the segment array are directly accessible;  
wherein the segment array is usable to unload the segments.

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36. The carrier medium of claim 35, wherein said storing comprises storing  
the segments in the segment array in an indexed order;  
wherein the program instructions are further executable to implement  
creating a lookup table;  
wherein said lookup table is useable to access the segments in the  
segment array.

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37. The carrier medium of claim 36, wherein said segments in the segment array are directly accessible by first accessing a root segment and then accessing child segments of the root segment using the lookup table.

5 38. The carrier medium of claim 36, wherein said storing comprises storing the segments in the segment array according to rules in the IMS database.

39. The carrier medium of claim 36,  
10 wherein said lookup table comprises a plurality of pairs, each of said pairs comprising a key value and a segment array location;  
wherein said key value is used to index into the lookup table to obtain a corresponding segment array location.

40. The carrier medium of claim 39, wherein said storing comprises storing  
15 the segments in the segment array according to a collating sequence of the key values in the lookup table.

41. The carrier medium of claim 40, wherein said key value comprises a  
20 segment type identification number, a partition identification number, a data set group identification number, and a relative byte address.

42. The carrier medium of claim 41, wherein said segment type identification  
25 number within said key value causes the root segments to be stored in the segment array before the child segments.

43. The carrier medium of claim 36, wherein the program instructions are  
further executable to implement accessing segments from the segment array,  
wherein said accessing comprises:

- 30 (a) examining a root segment in the segment array;  
(b) generating a key for a first child segment of the root segment using

information in the root segment;

- (c) obtaining a segment memory location of the first child segment from the lookup table using the key for the first child segment;
  - (d) examining the first child segment using the segment memory location of the first child segment;
  - (e) generating a key for a subsequent child segment of the root segment using information in the previous child segment;
  - (f) obtaining a segment memory location of the subsequent child segment from the lookup table using the key for the subsequent child segment;
  - (g) examining the subsequent child segment using the segment memory location of the subsequent child segment;
- repeating (e), (f), and (g) for zero or more subsequent child segments.

44. The carrier medium of claim 36, wherein the program instructions are further executable to implement accessing segments from the segment array, wherein said accessing comprises:

examining a root segment in the segment array;  
processing information from the root segment and subsequent child segments to access each root segment and its zero or more child segments according to their hierarchical relationship.

45. The carrier medium of claim 44, wherein said processing uses the lookup table.

46. The carrier medium of claim 35, wherein said storing comprises storing the child segments in the segment array in a relative byte address (RBA) order; wherein the program instructions are further executable to implement creating a first segment array for root segments and a second segment array for child segments.

47. The carrier medium of claim 46, wherein said segments in the segment arrays are directly accessible by first accessing a root segment from the first segment array and then accessing child segments of the root segment from the second segment array.

48. The carrier medium of claim 46, wherein the program instructions are further executable to implement accessing segments from the segment arrays, wherein said accessing comprises:

- (a) examining a root segment in the first segment array;
  - (b) determining an RBA of a first child segment of the root segment using information in the root segment;
  - (c) examining the first child segment in the second segment array using the RBA of the first child segment;
  - (d) determining an RBA of a subsequent child segment of the root segment using information in the previous child segment;
  - (e) examining the subsequent child segment in the second segment array using the RBA of the subsequent child segment;
- repeating (d) and (e) for zero or more subsequent child segments.

49. The carrier medium of claim 46, wherein the program instructions are further executable to implement accessing segments from the segment array, wherein said accessing comprises:

- examining a root segment in the segment array;
- processing information from the root segment and subsequent child segments to access each root segment and its zero or more child segments according to their hierarchical relationship.

50. The carrier medium of claim 49, wherein said processing uses the first segment array and the second segment array.

51. The carrier medium of claim 35, wherein the program instructions are further executable to implement de-blocking segments in said blocks in response to said reading by extracting the individual IMS segments that are physically contained within the physical block.

52. The carrier medium of claim 35, wherein the carrier medium is a memory medium.